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Does overreaction still exist in Thailand?

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Abstract

Overreaction of stock prices is identified when investors give more credence to new information than its intrinsic value, thus driving stock prices away from the level at which they should be. This study aims to examine the overreaction hypothesis in Thailand in recent years, with the intention of suggesting investment strategies based on the results obtained. The final sample of 438 companies was collected from the period 1990 to 2016 and is categorised into two portfolios: loser portfolios, with the lowest past returns; and winner portfolios, with the highest past returns. Both equally-weighted and value-weighted methods are used to examine these two portfolios. The results show evidence of stock price overreaction on the Thai stock market, particularly during periods involving interesting situations, such as the Asian financial crisis of 1997, political chaos in 2005, and the global financial crisis in 2008–2009. Moreover, the contrarian strategy is preferred when investing in Thailand, as the loser portfolios reveal a reversed performance in the following period. However, when the value-weighted method is applied, evidence of overreaction is stronger. This indicates that larger stocks appear to overreact more in comparison to smaller ones. Thus, the size effect should be an interesting point to consider prior to making investment decisions in Thailand.

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Introduction

The efficient market hypothesis (EMH) asserts that stock prices fully reflect all available information. If the market is efficient, stock prices would follow a random walk process (Fama, 1970). As a result, there will be no abnormal returns and investors will only earn returns based on the risk undertaken. Nevertheless, stock market behavior and its return anomalies have recently been widely discussed in finance research (for example, De Bondt & Thaler, 1985; Shefrin, 1999).

Overreaction is a type of market anomaly which occurs when current information is regarded as more important than fundamental information. In this situation, stock prices fully reflect historical market data. Investment strategies in this overreaction period are known as contrarian and momentum strategies. The contrarian strategy is invoked when investors take a long position with poorly performing stocks because their performance is expected to improve later, and take a short position with upwardly performing stocks in order to gain abnormal returns. In momentum strategy, it is believed that performance will persist in the subsequent period. Thus, in order to earn abnormal returns, investors will act in the opposite way to contrarian strategy, taking a long position with strongly performing stocks, and a short position with poorly performing ones. De Bondt and Thaler (1985) indicated that the overreaction hypothesis predicts a substantial reaction of stock prices in one direction, followed by a movement in the opposite direction. As a consequence,

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investors will make gains or losses from their portfolios due to this significant movement of stock prices. By testing stock price overreaction, several previous studies suggested that momentum strategy is applied to short-term investments, whereas contrarian strategy is preferable in the longer term (e.g. Choudhary & Sethi, 2014; Demir, Muthiswamy, & Walter, 2004; Forner & Marhuenda, 2003; Mun, Vasconcellos, & Kish, 2000). However, these studies report mixed results regarding stock price overreaction in both developed and emerging markets.

The objective of this study was to examine stock price overreaction in Thailand (as a case study of an emerging market) with a longer study period and more recent data. The research question arises as to whether or not overreaction provides any information regarding investment strategies to investors in the country, since there is a lack of studies in this particular area. The implications are therefore intended to be a guiding instrument for investors and fund managers, providing necessary information to improve their investment decisions. Policy issuers could also benefit by improving their regulations caused by the overreaction effect.

Literature Review

In an efficient market, stock prices reflect all available information. Fama (1970) classified efficient markets into three forms, based on the information set: 1) weak form efficiency, when information is based on past prices and volumes, implying that technical analysis cannot be used to earn additional profit; 2) semi-strong form efficiency, when information consists of what is publicly available, implying that it is impossible to use fundamental analysis; 3) strong form efficiency which is based on all public and private information, meaning that even inside information cannot be used to exploit abnormal profits.

Recently, the efficient market has been challenged by many scholars. Several studies have reported a return anomaly, while others revealed evidence of predictability in price movement. Overreaction is an example of weak form market inefficiency, which was first revealed by De Bondt and Thaler (1985). Their seminal paper showed that investors overvalue recent information and undervalue past information. As a result, the worst (or best) performing portfolios become the best (or worst) performing portfolios in the subsequent period. An implication of this evidence is that investors can take advantage of stock price movement in order to earn abnormal profits by using contrarian strategies—buying past-underperforming stocks and short selling stocks that outperform the market.

Overreaction of Stock Prices — the Evidence

After the seminal work of De Bondt and Thaler (1985), several studies investigated the evidence of overreaction. Brailsford (1992) studied the overreaction of stock prices in Australia between 1958 and 1987. His results demonstrated no stock price overreaction among Australian firms. As time goes on, the returns on winner portfolios fell, whereas the loser portfolios showed no change in returns. Jegadeesh and Titman (1993) showed that the reaction of stock prices appeared to follow the relative strength strategies by taking a long position with strongly performing stocks (the winners) in the past, and taking a short position with poorly performing ones.

Considering the contrarian and momentum strategies, Forner and Marhuenda (2003), Bhoolkesorn (2008) and Wu (2011) presented similar evidence, that overreactions are consistent with the contrarian strategy in Spain, the U.S. and China. In China, Wu (2011) revealed that no abnormal return can be made via the momentum strategy, whereas Bhoolkesorn (2008) identified that profitability via the same strategy depends on how much the stock price overreacts to particular events. In Spain, the results from Forner and Marhuenda (2003) identified that abnormal returns can be produced by these two strategies: momentum in the short-term and contrarian in the long-term. Applying equal-weighted portfolios in their study, Plyakha, Uppal, and Vilkov (2012) showed that higher return and higher alpha were found in a contrarian strategy. However, Demir et al. (2004) showed that only momentum strategy was suitable from their sample in Australia, particularly during the short-term investment period.

Although the studies above focused mostly on examining overreaction without relating it to a particular event, earlier research papers tended to test stock price reactions (both under- and overreaction) based on specific events, such as earnings announcements (De Bondt & Thaler, 1985), unexpected or dramatic news (Bowman & Iverson, 1998), tax-loss selling and quarterly earnings announcements (Chopra, Lakonishok, & Ritter, 1992), short-selling (Fung, 1999), and political incidents (Yusoff, Salleh, Ahmad, & Idris, 2015).

Overreaction of Stock Prices—Empirical Tests

From the literature review, it can be seen that overreaction testing will lead to the selection of investment strategies (for example, Demir et al., 2004; Forner & Marhuenda, 2003; Jegadeesh & Titman, 1993; Wu, 2011), whereas examinations relating to market efficiency need to focus on particular information (for example, Bowman & Iverson, 1998; Chopra et al., 1992; Dhamotharan, Ali, & Ahmad, 2009). In addition, the earlier literature mostly considered data from developed markets, with only a few using that from emerging markets. Thus, it would be beneficial to expand the study in this area to an emerging market, namely Thailand, with more recent data and situations, and to include a longer period (between 1990 and 2016). This study period also contains different periods, covering several important incidents relating to the Thai context: first, the Asian financial crisis in 1997, which commenced in Thailand; second, the political chaos in Thailand which has been continuing since late 2005, followed by the military takeover of the government in 2006; and finally, the global financial crisis (GFC) which occurred in 2007–2009, during which the Thai capital market was substantially affected, particularly the housing finance sectors, together with a drop in exports in early 2009 (confirmed by Chomthongdi, 2009).

Although some related research has been conducted with Thai samples, the results showed very mixed outcomes and appeared to be inconclusive. For instance, Thai evidence demonstrated overreaction (Ruttanajongkol, 2010), underreaction (Panyakosa, 2004), and even both reactions (Saisingthong, 2003). Therefore, our hypotheses have been developed according to the overreaction hypothesis and the previously reviewed literature, as follows:

$H_{0,1}$: No abnormal return for companies listed on the Stock Exchange of Thailand (SET, hereafter)
$H_{0,2}$: No overreaction of stock returns for companies listed on the SET
$H_{0,3}$: No overreaction of winner portfolios on the SET
$H_{0,4}$: No overreaction of loser portfolios on the SET

Methods

Data Collection

The monthly closed prices were obtained via DataStream from companies listed on the SET between 1990 and 2016. Conforming to De Bondt and Thaler (1985), the data were divided into two non-overlapping sub-periods, namely the ranking period and testing period, each with a three-year slot. This three-year slot period was applied because: (1) it is used mostly by the previous research (Forner & Marhuenda, 2003); and (2) it covers the representative short-term (one year) and long-term (at least three years) periods. A sample was excluded if it contained data for a period of less than 36 months during the study period. The final sample is shown in Table 1.

Data Analysis

Using closed prices, monthly abnormal returns were determined for each stock from January 1990 to December 2016. Subsequently, the market model was applied for the calculation of abnormal return (AR), following the suggestions of previous studies on the topic (Bartholdy, Olson, & Peare, 2007; Diacogiannis & Makri, 2008; Lerskullawat, 2012; MacKinlay, 1997) – see Eq. (1) and (2):

$$R_{it} = \ln\left(\frac{P_{it}}{P_{it-1}}\right) \quad (1)$$

Table 1
Final sample between 1990 and 2016

Ranking period (years)	Testing period (years)	Number of companies
1990–1992	1993–1995	84
1993–1995	1996–1998	164
1996–1998	1999–2001	239
1999–2001	2002–2004	267
2002–2004	2005–2007	275
2005–2007	2008–2010	344
2008–2010	2011–2013	404
2011–2013	2014–2016	438

$$AR_{it} = R_{it} - \alpha_{it} - \beta_{it}(R_{mt}) \quad (2)$$

where

t = period measured relative to the event
P_{it} = closed price on security i and time measured relative to the event period
R_{it} = the actual return of security at time measured relative to the event period
R_{mt} = market return at time measured (in this case defined as return on the SET index, which is the main composite index on the SET),
β_{it} = the OLS estimators of the market model parameters, calculated in the estimation period

Subsequently, cumulative abnormal returns (CARs) for every stock were computed for each ranking period using the formula in Eq. (3):

$$CAR_i = \sum_{t=-35}^{0} AR_{it} \quad (3)$$

where

CAR_i = cumulative abnormal return of security i.

Then, for each ranking period, the CARs of each stock were ranked and categorized into 10 groups of ranking periods. The stocks in the top 10 percent were assigned to the winner portfolio (Winners) and the bottom 10 percent were assigned to the loser portfolio (Losers). In addition, employing arbitrage strategy, bought Loser and sold Winner stocks were assigned to the arbitrage portfolio (Losers–Winners)—see Figure 1.

Subsequently, the CARs of the stocks in the portfolios during the testing periods were used to calculate the portfolio CAR (CAR_p) using the equally-weighted method. The calculation of CAR_p for each of the testing periods is given in Eq. (4).

$$CAR_p = \frac{\sum_{n=1}^{n} CAR_n}{n} \quad (4)$$

The equally-weighted method was first selected because the portfolios could be arranged without any bias from different values measured by market capitalization. This point was confirmed by evidence in the previous literature; for instance, De Bondt and Thaler (1985), Kadiyala and Rau (2004), Ferguson and Schofield (2010) and Plyakha et al. (2012). Nevertheless, the value-weighted method was also applied as the robustness test when organizing the ranking period. Should there be a difference in the results, the value-weighted method would provide evidence concerning the size effect (see Choudhary & Sethi, 2014).

The t-test was employed to investigate evidence of overreaction. A negative significant t-value in the Winners would suggest that they would perform poorly in the subsequent period. Similarly, positive significant t-values in the Losers would suggest that the poorly performing portfolio is outperformed in the subsequent period. Thus, this would reveal evidence of overreaction in the sample.

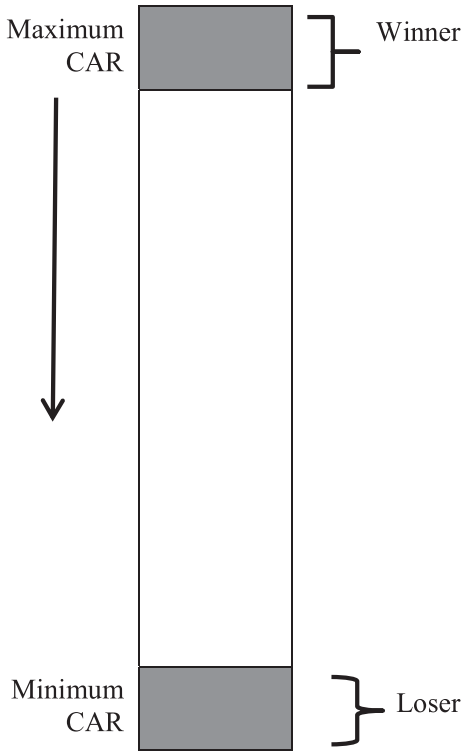

Figure 1 Illustration of CARs categories for the ranking periods of the equally-weighted method

Results and Discussion

During the study period of 1990−2016, the results of the CARs in the Winners, Losers and the Losers-Winners were lowest in the period 1993−1995, at −0.6015, −0.1086 and −0.4929 respectively (see Table 2), whereas the other periods show positive average CARs.[1] Moreover, there were statistically significant average CARs of the Losers-Winners portfolios in five out of the eight testing periods (see Table 2—panel C). This was consistent with the overreaction hypothesis. Interestingly, these significant periods covered the important incidents with regard to the Thai context, such as the Asian financial crisis of 1997, the recovery of the Thai capital market between 2002 and 2004, the political chaos in late 2005, and the global financial crisis between 2008 and 2009. These findings were also consistent with previous studies, for example, Chopra et al. (1992), Gunaratne and Yonesawa (1997), Bowman and Iverson (1998), Panyakosa (2004) and Dhamotharan et al. (2009).

With the equally-weighted method, the results revealed that the Losers had reversed ARs in the subsequent period, indicating with positive statistical significance average CARs in the Losers and Losers-Winners (see Table 3—panels A and C). In the Losers, the average CARs were significant (both at 5% and 10%) and demonstrated reversed ARs from the 14th month onwards. Nevertheless, the Winners had no significance differences for the reversed average CARs during the study period of 1990−2016. In addition, the average CARs in the Losers-Winners were statistically significant at 10% after the 27th month. Hence, the Losers performed better than the Winners after the two-year period.

This evidence was consistent with earlier studies, such as Chopra et al. (1992), Gunaratne and Yonesawa (1997), Bowman and Iverson (1998), Forner and Marhuenda (2003) and Hsieh and Hodnett (2011). Investors would undervalue in the Losers but not overvalue in the Winners.[2] Therefore, this evidence appears to be asymmetric. There is also an opportunity to gain ARs by using the contrarian strategy—buying Losers and selling upward performing stock (Winners). Moreover, since the negative average CARs of the Losers-Winners were not significant, the momentum strategy would not be an applicable investment strategy for Thailand (see Table 3—panel C).

Furthermore, when the value-weighted method was employed to construct the portfolios, the evidence of overreaction was more pronounced in both Losers and Winners. Nonetheless, the average CARs of Winners were significant in the 7th and 8th months, then in the 19th month onward (see Table 4—panel B). This suggests that large stocks overreacted more than small stocks, implying that the size effect played an important role, which should be considered. This finding was consistent with previous research—Spyrou, Kassimatis, and Galariotis (2007) and Choudhary and Sethi (2014)—whereas the results in Chopra et al. (1992) and Demir et al. (2004).[3] provide evidence inconsistent with this study.

Conclusions and Recommendations

The overreaction hypothesis was using a sample from Thailand from between 1990 and 2016, in order to establish which investment strategies were suitable for investment in Thailand. This was correspondingly an out-of-sample examination of whether previous results have carried over to Thailand (as an emerging market) in recent years. The findings showed that overreaction remains, particularly after 12 months for the Losers and up to 36 months for the Losers−Winners. Hence, the Losers demonstrated a reversed performance in the longer period and a contrarian strategy is preferable in this case. Although the average CARs in the Winners rose gradually as the testing period became longer, there was no evidence of overreaction. In addition, with the value-weighted method, overreaction began to cover more periods, identifying that the size effect

[1] The reason why it is the only period with a negative value can be explained by the fact that the market returns (SET index returns) were high between 1993 and 1996, which was before the Asian crisis. Also, the calculation of AR is the actual return subtracted from the market return. When the market return is high in value, this causes the AR to have a negative value.

[2] The undervaluation of the Losers will then drive the stock prices back to where they should be, causing the stock prices to increase. In contrast, investors would overvalue Winners and cause stock prices to decline. However, the results in this study show overreaction only in Losers.

[3] Demir et al. (2004) show no size effect related with the overreaction hypothesis, but consider this only with the momentum strategy, which is not the case in this study.

Table 2
Differences between cumulative abnormal returns in the testing periods

Ranking period	Testing period	Panel A: Losers		Panel B: Winners		Panel C: Losers−Winners	
		Mean	SD	Mean	SD	Mean	t
1990−1992	1993−1995	−0.6015	0.6441	−0.1086	0.8410	−0.4929	−1.3159
1993−1995	1996−1998	1.1955	0.9514	0.5257	0.9144	0.6698	2.0303*
1996−1998	1999−2001	1.3633	1.4988	0.5759	0.9097	0.7874	2.1875**
1999−2001	2002−2004	0.5749	2.7914	0.5096	0.9703	0.0654	0.1128
2002−2004	2005−2007	1.4035	3.5988	−0.3315	0.7752	1.7350	2.6552**
2005−2007	2008−2010	0.3822	1.1369	−0.0559	0.6956	0.4382	1.9169*
2008−2010	2011−2013	0.9363	1.9681	0.1070	0.8145	0.8293	2.4625**
2011−2013	2014−2016	0.3130	0.6972	0.3484	1.3712	−0.0353	−0.1506

Note. The table shows the descriptive statistics of average CARs during the ranking period from 1990 to 2016 with the total sample of 438 firms. N is the number of firms in the particular period. SD represents the standard deviation. t is the student-t statistic for examination of whether or not the average CARs are different from zero
* Significant at 10%
** Significant at 5%

Table 3
Average cumulative abnormal returns for Loser, Winner, and Loser-Winner portfolios using the equally-weighted method

Month	Panel A: Losers		Panel B: Winners		Panel C: Losers−Winners	
	Mean	t	Mean	t	Mean	T
1	−0.0102	−0.6050	−0.0049	−0.3843	−0.0053	−0.2617
2	0.0001	0.0029	0.0271	1.8706	−0.0271	−1.0104
3	0.0072	0.2041	0.0361	0.0361	−0.0290	−0.6018
4	0.0066	0.1780	0.0499	1.0217	−0.0433	−0.6591
5	−0.0176	−0.2716	0.0465	0.5964	−0.0641	−0.7658
6	0.0455	0.9445	0.0547	0.7021	−0.0093	−0.0964
7	0.1726	1.5457	0.1217	1.1611	0.0510	0.3749
8	0.1894	1.6417	0.1125	0.9959	0.0770	0.5481
9	0.1919	1.8537	0.1078	0.9173	0.0841	0.6334
10	0.2109	2.0989*	0.1463	1.2694	0.0646	0.5103
11	0.2033	1.9341*	0.1385	1.0417	0.0648	0.4464
12	0.1935	1.8310	0.1264	0.9108	0.0671	0.4283
13	0.1778	1.6942	0.1137	0.8322	0.0641	0.3958
14	0.2608	2.2681*	0.1097	0.7950	0.1511	0.7945
15	0.2765	2.3906**	0.0993	0.7043	0.1772	0.9464
16	0.3152	2.4151**	0.0785	0.5681	0.2367	1.1857
17	0.3058	2.2995*	0.0918	0.6485	0.2140	1.1174
18	0.3888	2.3414*	0.0782	0.5620	0.3106	1.3305
19	0.3699	2.2471*	0.0786	0.5791	0.2914	1.2331
20	0.3947	2.2291*	0.0976	0.7096	0.2971	1.2264
21	0.4114	2.2945*	0.1045	0.7672	0.3069	1.2840
22	0.4307	2.2484*	0.1232	0.8436	0.3074	1.2133
23	0.4885	2.4839**	0.1452	1.0450	0.3433	1.3504
24	0.5270	2.6725**	0.1410	1.0898	0.3861	1.5380
25	0.5200	2.5307**	0.1062	0.9816	0.4138	1.6277
26	0.5446	2.7273**	0.1449	1.2856	0.3997	1.6186
27	0.6554	3.0078**	0.1549	1.4313	0.5006	2.0968*
28	0.6889	3.0475**	0.1529	1.3927	0.5360	2.2836*
29	0.7060	3.0407**	0.1485	1.3827	0.5575	2.3161*
30	0.7113	2.9954**	0.1563	1.5471	0.5550	2.1931*
31	0.7425	2.9802**	0.1380	1.3087	0.6045	2.2069*
32	0.7613	2.9117**	0.1415	1.2964	0.6198	2.2048*
33	0.7542	2.9262**	0.1449	1.3918	0.6093	2.2111*
34	0.7190	2.9062**	0.1196	1.1907	0.5994	2.2732*
35	0.7078	2.9578**	0.1952	1.6286	0.5125	2.1255*
36	0.6971	2.9208**	0.1963	1.6252	0.5008	2.0921*

Note. The table shows the average CARs during the testing period (1993−2016) using the equally-weighted method. **Panel A** shows the average CARs during the 36 months of the Loser portfolios. **Panel B** shows the average CARs of the Winner portfolios during the testing period of 36 months. **Panel C** shows the average CARs of the difference between Loser and Winner portfolios during the testing period of 36 months. t is the student-t statistic for examination of whether the average CARs are different from zero
* Significant at 10%
** Significant at 5%

Table 4
Average cumulative abnormal returns for the Loser, Winner and Loser-Winner portfolios using the value-weighted method

Month	Panel A: Losers		Panel B: Winners		Panel C: Losers-Winners	
	Mean	t	Mean	t	Mean	t
1	−0.0074	−0.4381	−0.0115	−0.9540	0.0041	0.2337
2	0.0161	0.4092	0.0233	1.4067	−0.0072	−0.2611
3	0.0366	0.7862	0.0190	0.9188	0.0176	0.4245
4	0.0298	0.6437	0.0376	1.0706	−0.0078	−0.1382
5	0.0240	0.3738	0.0444	0.8541	−0.0204	−0.2943
6	0.0914	1.5675	0.0715	1.5652	0.0199	0.2613
7	0.2217	1.7053	0.1396	2.1487*	0.0821	0.6612
8	0.2434	1.8485	0.1460	2.0295*	0.0974	0.7987
9	0.2379	2.0623*	0.1281	1.6685	0.1098	0.9688
10	0.2612	2.4755**	0.1522	1.8084	0.1090	1.0278
11	0.2718	2.4841**	0.1573	1.7412	0.1145	0.9980
12	0.2762	2.6173**	0.1698	1.7857	0.1064	0.9190
13	0.2576	2.4171**	0.1507	1.5599	0.1070	0.8479
14	0.3007	2.6173**	0.1493	1.6632	0.1514	1.1678
15	0.3339	2.7311**	0.1720	1.7628	0.1619	1.3082
16	0.3801	3.0701**	0.1834	1.6686	0.1967	1.5247
17	0.3728	2.9080**	0.1889	1.6937	0.1839	1.5054
18	0.4601	3.5616***	0.2031	1.8881	0.2570	1.9813*
19	0.4631	3.9008***	0.1912	1.9869*	0.2719	2.3253*
20	0.5148	3.6628***	0.2148	1.9791*	0.3001	1.9034*
21	0.5780	4.2054***	0.2359	2.2855*	0.3421	2.1658*
22	0.6035	4.0737***	0.2740	2.6199**	0.3295	2.0124*
23	0.7339	3.5747***	0.2720	2.6989**	0.4619	1.9424*
24	0.7811	3.6116***	0.3023	2.9900**	0.4788	1.9315*
25	0.8094	3.6518***	0.2765	2.8763**	0.5329	2.1144*
26	0.8831	3.9984***	0.3010	3.6364***	0.5821	2.4694**
27	0.9861	3.8793***	0.2851	3.5331***	0.7010	2.6506**
28	0.9900	3.8743***	0.3046	3.3493**	0.6854	2.657**
29	1.0036	3.9856***	0.3134	3.7299***	0.6902	2.7747**
30	1.0095	3.9955***	0.3267	3.3336**	0.6829	2.5316**
31	1.0467	3.7404***	0.3055	2.7845**	0.7412	2.4139**
32	1.0721	3.6869***	0.3175	3.1635**	0.7547	2.5361**
33	1.0837	3.6788***	0.3254	3.6954***	0.7583	2.5788**
34	1.0549	3.5409***	0.3122	3.3831**	0.7427	2.4213**
35	1.0495	3.8141***	0.3882	4.1039***	0.6613	2.9568**
36	1.0443	3.9205***	0.4004	4.0174***	0.6440	2.9909**

Note. The table shows the average CARs during the testing period (1993−2016) using the equally-weighted method. **Panel A** shows the average CARs during the 36 months of the Loser portfolios. **Panel B** shows the average CARs of the Winner portfolios during the testing period of 36 months. **Panel C** shows the average CARs of the difference between Loser and Winner portfolios during the testing period of 36 months t is the student-t statistic for examination of whether the average CARs are different from zero
* Significant at 10%
** Significant at 5%
*** Significant at 1%

was involved. Therefore, investors should use the contrarian strategy when investing in Thailand, implying that stock prices are predictable. As a result, the Thai capital market was shown to be inefficient.

Nevertheless, stock price reactions would also be caused by other factors, such as economics and the sector considered. Including these factors, or concentrating on a particular period in depth, for instance that of bull and bear economies, would lead to interesting findings for future research. In addition, from the findings of the overreaction testing, there would be some interesting evidence of which investors could be informed or shown through the accounting numbers (Ball & Brown, 1968; Beaver, 1968). This is known as the estimation of information contents and it would be another option for future focus in this area.

Conflict of Interest

This research displays no conflict of interest.

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